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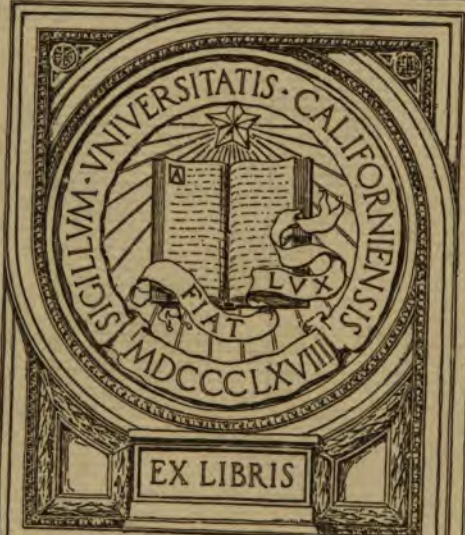
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Secondary Education in Vermont



By

RAYMOND McFARLAND

Professor of Secondary Education

MIDDLEBURY, VERMONT

MAY, 1912

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A Study of Secondary Education in Vermont

UNIV. OF CALIFORNIA

By
Raymond McFarland
Professor of Secondary Education

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PREFACE.

By an act of the General Assembly of 1908 a Department of Pedagogy was established at Middlebury College for better professional training of teachers for secondary school work. The college soon came to recognize the necessity of a more intimate knowledge of conditions in the high schools and academies of Vermont, their special needs and problems, in order to a clearer understanding of its mission in helping these schools to be more efficient means in serving their constituents. To secure this information, Raymond McFarland, Professor of Secondary Education, was directed to visit the secondary schools of the State, or as many of them as could be reached during the first half of the school year of 1911-12. He was received in a most courteous and kindly manner, both by superintendents, principals, and teachers, and accorded every facility for his examinations, for which both he and the College desire to to express earnest gratitude. Study of his report will show that his investigations were conducted in a thorough and impartial manner, with the sole object of acquiring facts which may be found useful in improving educational conditions in the State. Progress must be based upon facts, and as a contribution to the knowledge of conditions in Vermont education this report is sent out to the friends of Vermont schools. While the report is in many respects encouraging, it also suggests the need of advance in several directions, and the facts contained in it have already proved of service in the Middlebury College Department of Pedagogy.

JOHN M. THOMAS.

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SECONDARY EDUCATION IN VERMONT.

EXTENT OF INQUIRY.

The results set forth in this paper were secured through a visitation to the schools of secondary grade in Vermont, covering a period of four months from the first of October, 1911, to the first of February, 1912. During the time, 54 high schools, 16 academies, 2 normal schools, the Industrial School and the State Agricultural School were visited. The total number of schools visited represents 88 per cent of the teaching staff and 77 per cent of the secondary school system of the state. Observations were made of the classroom work of 209 teachers in 296 recitations.

METHOD OF INQUIRY.

The method of procedure in the field work was to send to the principal of the school an announcement of the intended visit usually three or four days before the visit was made. At the school, interviews were held with the principal and, when possible, with the superintendent and teachers, and an inspection of conditions and observation of methods were made in the following particulars:

I. *Physical Conditions:**

(a) building, (b) grounds, (c) heating, (d) lighting, (e) sanitation, (f) janitor work, (g) ventilation.

*This form follows very closely that used by the Inspector of High Schools, State of Maine.

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II. Equipment:

(a) Library,—

(1) number of books, value, (2) accessibility, (3) encyclopedias and dictionaries, (4) scientific reference works, (5) reference works in history and literature, (6) deficiencies.

(b) Laboratory,—

(1) general arrangement of the room, (2) physics,—value of apparatus, condition, storage, (3) chemistry, value of apparatus, condition, storage, (4) other science equipment.

III. Teaching Staff:

(a) Name of teacher, (b) amount of education, (c) experience in teaching, (d) professional training, (e) subjects taught, (f) salary.

IV. Recitations Observed.

(a) teacher, (b) subject, (c) number of pupils, (d) preparation of class, (e) preparation of teacher, (f) methods of instruction, (g) comments.

V. Organization.

(a) admission, (b) special students, (c) 'double' classes, (d) faculty organization,— (1) departments, (2) professional work, (3) supervision by principal.

VI. Attendance.

(a) enrollment: boys, girls, total.

(b) regularity of attendance, (c) tardiness.

VII. Courses of Study:

(a) name and number, (b) program of study.

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VIII. Miscellaneous:

(a) working spirit of school, (b) management, (c) discipline, (d) spirit of community, (e) deficiencies in preparation of the entering class.

GROUNDS AND BUILDINGS.

The grounds and sites of the schools of Vermont are on the whole satisfactory. Only about 10 per cent may be classed as poor; about two out of every three schools are located on desirable sites with large grounds, which are usually free enough from trees and adjoining buildings to allow plenty of light to reach the school building and yard. Not enough care is taken in decorating the school grounds. In larger cities it is better to use the school yards as open-air play grounds, but in our communities, generally, there is plenty of space to beautify the grounds with shrubs and flowers and still leave room for children to play and exercise.

The academies have an advantage over the high schools in having their buildings free from grade pupils. It is rare to find an academy in which the high school and grade pupils occupy the same building, while among the high schools proper more than 80 per cent of them have grades in the same building. This is an unfortunate condition both for physical and moral reasons, as well as for class-room efficiency. Grade pupils should not be closely associated with larger and more advanced pupils. The programs of study, recitation and recess are not the same for the two classes of pupils; consequently, there are frequent interruptions during the progress of class-room work by the passing of pupils through the hallways and the noise incident to frequent recesses.

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LIGHTING.

While two-thirds of the schools have satisfactory grounds, also two-thirds of the buildings are poorly supplied with light through inadequate window space. Teachers do not realize their responsibility in maintaining the best possible conditions for lighting and ventilating rooms. Too often the shades are left where they happen to be, with no consideration for the bright or dull day. Usually two-thirds of the light comes through the upper half of the window. Many cases of severe eye strain could be avoided by raising the shades to the top of the windows, or, what is better, by having shades that may be adjusted from the middle of the window.

There is urgent need of reform in school hygiene. The trend in life today is aseptic instead of antiseptic; that is, effort is expended in preventing bad conditions rather than in remedying them. It is the duty of the school principal to have his teachers attend carefully to the lighting and ventilation of the school rooms in so far as it lies in their power.

SANITATION AND JANITOR WORK.

A good janitor is rather to be chosen than great buildings. There are many sweepers, cleaners and dust disturbers, but less than a dozen first-class janitors in the state. Consequently unsanitary conditions were found in about two out of every three buildings that were visited. In some cases conditions exist that would justify the closing of school until the sanitation was made satisfactory. In two instances at least schools were conducted in buildings which, I was informed, had been condemned by the State Board of

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Health. An abundance of dust in the air of school rooms is a constant menace to teachers and pupils. In too many instances the sweeping of floors is done in the morning before school opens or during the noon recess.

At Morrisville the evil effects of dust have been reduced to a minimum by the installation of a vacuum cleaner plant in the high school building at a cost of about $600. The plant is connected by under-ground tubes with an adjoining grade building. The janitor removes dust and dirt from floors and chalk rails after the close of school as quickly as by the old method of sweeping and in a much more sanitary manner.

VENTILATION.

Probably no phase of the physical side of school hygiene is so important to sound health and clean thinking as adequate ventilation. Yet this subject receives inadequate attention in the administration of our high schools. The fault lies partly in the lack of proper facilities for ventilation and partly in the ignorance of teachers in the subject of school hygiene. In the state there are perhaps seven high schools in which the facilities for ventilation may be considered excellent. One-third of the total number of the schools may be put in the class of "excellent and good" ventilation. There are more schools in which the ventilation is very poor than very good. Two-thirds of the schools may be rated as below the standard required for satisfactory ventilation.

According to certain authorities in matters of vital economy, "the effect of the vitiated air of unventilated schoolrooms is to reduce the work of teachers and scholars to at least 75 per cent of that easily and regularly done in

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well-ventilated rooms."* According to this estimate, the poor ventilation of schoolhouses and rooms in the secondary schools of the state would cause a falling off in the efficiency of the school system to 83 1-3 per cent of what the schools could and should do under the best conditions of ventilation. A few instances may serve to show some of the extreme types of poor ventilation.

CASE 1. In a good school building the system of ventilation is by warm air which starts at the furnace, passes through the several rooms on two floors and returns again to the furnace through vents placed in the first floor. By this process, the vitiated air is returned to the furnace, reheated and sent forth on its round of the rooms of the building. This circulatory system of vitiated air is kept up all day long. Little use is made of a fresh-air flue from the outside because the janitor, school directors and public in that town believe that buildings cannot be heated when air is taken directly from out-of-doors.

CASE 2. In an assembly room, 40 feet square by 11 feet high, considerably more than 100 pupils have their seats. The ventilating facilities for this room are two flues in the chimney at the back of the room, 12 x 18 inches in size. The ventilation of this room was the very worst that I found in the state. Yet my attention was called to this provision for ventilation, which had been recently installed, as affording great relief from former conditions.

CASE 3. Another assembly room which seats 90 pupils has cubic contents so inadequate that there should be a renewal of air every five minutes in the room. The only

*Woodbridge: Air and the School House, p. 29.

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provision for ventilation here is one chimney-flue less than two square feet in area.

CASE 4. Forty-one pupils were confined in a room 25 feet square and 9 feet high for a period of forty minutes with absolutely no provision made for ventilating the room and neither doors nor windows thrown open. Here the air should have been changed once in every 4 1-3 minutes, and by the time the recitation was ended it was dead-air 9 times.

One's duty ought not to cease with a mere recital of conditions as they are found. Time and again there was impressed upon me the helplessness of my own position as representative of an educational institution with no authority to suggest, to act or to restrain. There is need of an authorized state official with knowledge of what constitutes good hygiene in schools, and power to act in every case of unsatisfactory hygienic conditions. The State Board of Health has accomplished much in recent years in bettering living conditions in schoolhouses and schoolrooms, in providing adequate fire protection in buildings, and establishing tests for impaired eyesight and hearing. Much more needs to be done. Too often the need for improvement is measured by its cost in dollars and cents. There are few cases where economy in money affairs should outweigh economy in vital power. The state compels attendance at school under certain ages. It ought therefore to provide adequately for the conservation of vital power in the case of every pupil who comes under its jurisdiction.

Disregarding wholly the health of the pupils, which is of the utmost importance but which cannot be expressed in figures, it can be shown how uneconomic are present con-

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ditions among the secondary schools of the state. As shown above, the loss to the state in efficiency of teacher and pupil through inadequate ventilation is 16 2-3 per cent.* In 1910 the cost of maintaining the secondary schools of the state was $200,154.97. Of this total, the amount that is rendered unproductive through unsatisfactory ventilation is $33,359.16—enough to keep a dozen trained experts in the field yearly inspecting and correcting conditions.

Over in the Connecticut valley the farmers told me that milk inspectors from Massachusetts visit their stables and insist that there be proper ventilation for the cattle, if the milk is to be shipped to Boston. How strange it is that the children of Vermont in many places are not provided with as good facilities for ventilation as may be found in our best stables, or that there is no state official to report the poor condition and arouse the community to action.

LIBRARIES.

A well equipped library is equally important for the large school and the small one. It should contain dictionaries, encyclopedias, atlases and general reference works, biographies, masterpieces of the world's best literature, books of story, travel and exploration, books relating to different subjects taught,—especially history, literature and the sciences,—and professional books for the teacher. Of equal importance is the accessibility of the school library to the students of the school during school hours and for a short time after the school session is over for the day. The

*Authorities in school hygiene believe that the evil effects of poor ventilation on pupils and teachers have been greatly underestimated. Professor Moore of Yale is of the opinion that efficiency in the school room is reduced 75 per cent by this means.

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secondary schools of the state show marked differences in their library equipment. Many are without books except the texts in use. Several of the academies have libraries of several thousand volumes each, but examination shows that many of these are in the nature of reports or books that have long outlived their usefulness. In some schools there are fairly representative collections, but their inaccessibility greatly decreases their practical value. A few schools have rooms specially for reading and reference, as at Barton, Bradford, Burlington, Brigham Academy, Goddard Seminary, and Poultney. The policy at Brattleboro is to purchase books as the needs of the different departments require. At Vermont Academy the library is housed in a building by itself.

It is an unusual occurence to find a school library that has in its list of books a proper balance between general reference works, references in history, literature and the sciences, and professional works for the teacher. No standards are set by this state and, so far as my knowledge goes, no suggested lists of books are sent to the secondary schools. A redeeming feature in the situation in many communities is the local library and librarian. Here one finds very often a valuable library annex to the high schools—attractive rooms, well selected books and capable librarians.

It is difficult to determine how many volumes are in the school libraries of the state. In the report of the state superintendent of education for 1910 the number of volumes in high school libraries is 19,596 and in academy libraries 21,910, making a total of 41,506.* The average

*The number given in the report is 44,606 volumes, which is evidently an error.

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high school library, then, has 355 volumes and the academies have 1217 volumes each. Not only are the academies better equipped so far as the number of books is concerned, but usually they provide greater accessibility to the books. However, it should be remembered that the difference in number of volumes is not a real measure of a school's library. The 500 volumes at Brattleboro, probably, are more serviceable than the libraries in some schools that list several thousand volumes.

It is generally believed that there is a direct relation between school efficiency and school libraries. This relation doubtless is a true one as between schools with good library equipment and those having little or none. The six best academies in the state have an average of 2400 volumes in their libraries, the 13 best high schools average 960 volumes each, and the 13 poorest high schools rated as first-class according to the classification now in force, none of which, however, is a first-class high school as progressive educators understand the term, average 99 volumes; 3 of the latter have no books, 3 have 40 each, and 3 others have less than 75 volumes. There is something vitally wrong in a system of education that lists schools having no books in their libraries whatever, in the same class with schools that possess library advantages such as are found at Bradford, Burlington, Saxtons River and many other places. In the state of New Hampshire one condition for approval as a high school of the first or second-class is the possession of a historical library which contains a list of fifteen standard reference works, or their equivalent, in Ancient History, 24 works in Mediaeval and Modern History, 21 works in English History, and 21 works in Ameri-

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can History. These works are required, not suggested, for schools which are to offer courses in History. It is not necessary for the works to be in the school library provided they are in the local public library and readily available for the use of pupils.

LABORATORIES.

While educators recognize the need of suitable library equipment in the modern high school, they also emphasize the superior importance of science teaching and laboratory work. The condition of the laboratories and, consequently, the means for doing adequate science teaching in the secondary schools of Vermont is even more deplorable than that of the libraries. According to the last report of the state superintendent of education there are 24 high schools equipped with both physical and chemical laboratories and 11 academies with the same kind of equipment. However, an examination in the field shows that in many cases the word "equipment" rather than "laboratories" should have been used. Several schools have meager laboratory equipments in physics and chemistry and are credited with having laboratories in these sciences. There are 13 secondary schools that are rated of the first-class which have no laboratories either in physics, in chemistry, or in any other subject. This list of schools corresponds fairly close to the list that has no libraries.

On the other hand, one finds science work of a high degree done in several of the schools that have separate rooms for experiment and storage, adequate equipment, and competent science teachers. It is a pleasure to observe the science work at Bellows Falls, Brattleboro, Burlington, Rutland, St. Johnsbury and Saxtons River. Special men-

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tion also should be made of the work that may be accomplished in a small high school. At Bristol a good room has been provided and equipped, and the work between physics and chemistry and biology is well balanced. Hardwick, also, may be mentioned as illustrating what can be done in furnishing and equipping laboratories and storerooms at moderate cost as well as in securing effective instruction in the sciences. The facilities for adequate science teaching at the normal schools at Castleton and Johnson as well as at the State Agricultural School at Randolph are far ahead of those provided by the average school of the first class of the state. In this particular, these schools might easily rank with the first twelve schools of the state.

Taking the schools as a whole, however, the facilities for science teaching are very inadequate. Twenty-eight per cent of the schools have no laboratory facilities for teaching chemistry and 25 per cent have no facilities for teaching physics. In the cases of 51 per cent of the schools, the value of the physics apparatus is less than $100 and in 67 per cent of the schools the value of the chemistry apparatus falls below $100. The value of laboratory equipment in different schools may be seen by consulting the following table:

VALUE OF LABORATORY EQUIPMENT.

Subject	No Value	$1.00–$99.00	$100.00–$299.00	$300.00–$499.00	Above $500.00
Physics	17	18	15	10	9
Chemistry	19	27	10	8	4

As for biology, more than half of the schools of the state give no instruction in the subject, either in botany or

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zoology. It is impossible to give an estimate of the value of biological apparatus in schools. Some idea of its importance may be had from the following table which shows the condition and storage of the apparatus used in biology, chemistry and physics in different schools. Schools usually are very lax in providing adequate storage for their scientific equipment. For this purpose there should be storerooms, or if these are impossible, large closets. Careful inventories of all apparatus and equipment should be made at the end of the school year. Such lists as these are valuable in determining the status of the department, in helping a new teacher to become acquainted with the stock in trade, and may be referred to easily when data is sought by the department of education or other interested persons.

LABORATORY EQUIPMENT.

Rating	Biology		Chemistry		Physics	
	Condition	Storage	Condition	Storage	Condition	Storage
Good	13	13	22	22	22	26
Fair	8	8	25	17	18	17
Poor	3	3	5	13	14	12
None	28	28	17	17	15	14

The programs of study of 8 of the smaller high schools listed in the first class, show that 51 per cent of the teaching is in the languages and less than 12 per cent in the sciences. In four of these schools the little science teaching that was attempted was done with no apparatus whatever. In a certain school the teacher gave a course in chemistry, although the school possesses no equipment whatever. In answer to my inquiry why, under these con-

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ditions, she taught the subject, the teacher replied that she had been fond of chemistry in college and thought it would be nice to have a class in chemistry in her school. This may be an extreme case but it is illustrative of how little the schools serve the needs and interests of the pupils, and of incompetent instruction that follows the old-fashioned book method instead of the laboratory method in the sciences.

There is great need for wholesome advance in the teaching of sciences in our secondary schools. It would be well if the state department of education should take the initiative in this matter. No school should be listed of the first class which does not possess an approved laboratory equipment in at least one of the major sciences. In the matter of state control, supervision, inspection, accrediting, Vermont is far behind her neighbors. The states of New Hampshire and Maine have made a great increase in efficiency of their secondary school system in general, and in the teaching of sciences in particular, within the past few years. In New Hampshire each approved high school must possess an approved list of apparatus for physics that numbers 94 pieces in order to meet the statutory requirements that schools shall be properly equipped in physics. In chemistry the list comprises 46 pieces of apparatus and in biology nine pieces. In Maine the maximum laboratory requirement presupposes:

1. A room specially equipped for the teaching of science.
2. A stock room, or large closet, for the storage of apparatus.
3. A liberal supply of scientific reference books in the school library.

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4. Individual and laboratory apparatus in chemistry and physics similar in kind and amount to the New Hampshire required lists.

Science teaching in Vermont needs to be developed, made mandatory and carefully inspected before we can hope to have a system of secondary education on a par with that in force in neighboring states.

TEACHING STAFF.

The teaching staff of Vermont secondary schools consists of 135 men and 235 women—a total staff of 370 teachers; these divided among the 73 institutions give an average of 5 teachers to a school or one teacher for about 20 to 25 pupils.* The ratio between the male and female

RATIO OF MALE AND FEMALE SECONDARY TEACHERS.

Place.	Per cent Men	Per cent Women
United States,	44.3	55.7
N. Atlantic Div.,	42.2	57.8
Maine,	39.5	60.5
New Hampshire,	38.6	61.4
Vermont,	36.5	63.5

secondary teachers of Vermont is 36.5 per cent male and 63.5 per cent female. This ratio shows relatively a smaller proportion of male teachers in Vermont schools in comparison with secondary schools of other states. In the accom-

*According to the last report of the state superintendent of education the number of secondary school students as furnished by the town clerks is 10,118; the number given by high school principals is 7,108.

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panying table a comparative view is given of the ratio of male and female secondary teachers in different parts of the country and different states, from data published within three years.

THE TEACHERS' EDUCATION.

Conclusions arrived at in regard to the amount of education that the secondary teachers of Vermont have had are based on data obtained from the 290 teachers who make up the staff in the schools that were inspected, or 78 per cent of the teachers of the state. The results show that 73.8 per cent of the secondary teachers are college graduates, 4.5 per cent have had part training in college, and 21.7 per cent are below the college grade. The last named class is made up of teachers whose education does not extend beyond the high, normal, commercial or vocational schools of secondary grade.

No estimate can be given of the influence of the professional training of teachers on the quality of their work in

AMOUNT OF EDUCATION OF SECONDARY TEACHERS.

	Com'l	Normal	High	Special	Part College	College
Men	6	2	1	10	4	93
Women	7	14	7	16	9	121
Total	13	16	8	26	13	214
Per cent	4.5	5.5	2.8	8.9	4.5	73.8

the classroom. Data relating to this subject is indefinite and may not be tabulated easily. Forty-one teachers have received professional training but it varies greatly in amount and kind from single summer session courses taken by

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teachers of high school grade to university work by college graduates for the Master's degree, or study abroad.

In the amount of education required of its secondary teachers, the Vermont system does not compare favorably with requirements in other states. In the state of Washington, for example, 82 per cent of the secondary teachers are of college grade; in New Hampshire above 92 per cent of the teachers are graduates of colleges. In New York not only must the teachers be college graduates but after two years of teaching in that state they must pass rigid examinations of a professional nature. A new plan of certification of teachers in state-aided high schools in Massachusetts goes into force this year, which requires for the future that teachers shall possess a bachelor's degree, shall have had special preparation in at least two subjects, called "majors", to which the candidate expects to devote particular attention in his work as teacher, and careful preparation in at least two other subjects of study, called "minor" subjects, taken from a selected list. In addition to this academic preparation, candidates must conform to certain requirements in professional study and training for their work as teacher. In Vermont there are no statutory requirements setting forth the academic or professional training of the candidates for teaching positions in secondary schools or otherwise designating the amount or character of the academic preparation and professional training of teachers for secondary schools; no distinction is made between the qualifications of high school teachers and those of the elementary grades.*

*Sec. 963, General Laws of the State of Vermont, reads:

"To College Graduates. A certificate of the first grade may be issued, without examination, to a graduate of a college approved by said

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SALARIES.

The salaries of male teachers range from below $400 to $2500. Fifty-five per cent of them receive salaries between $800 and $1300, 28 per cent between $1300 and $2500, and 17 per cent below $800. The salaries of female teachers range from $360 to $1000. Fifty-two per cent of them receive between $500 and $700, 26 per cent between $700 and $1000, and 28 per cent below $500. The average salary the first year for teachers with no previous experience is $758 for men and $457 for women. During the first six years of teaching experience the average salaries of men is between $300 and $400 greater than that of women. The relation between salaries and experience is shown in the following table:

RELATION BETWEEN SALARIES AND EXPERIENCE.

Years of Experience	0	1	2	3	4	5
Men	$786	$829	$937	$917	$1075	$1100
Women	457	497	585	617	625	700

Comment on the low salaries that our teachers receive seems unnecessary. It is a state of affairs that is recognized but not assented to by Vermont educators. A silent protest by Vermont teachers against absurdly low salaries is seen in the fact that none of the teachers who receive

superintendent, upon presentation of a diploma or certificate of graduation; and, at the expiration of the certificate so issued, if said graduate has taught forty weeks, said superintendent may issue a second first grade certificate."

A certificate of the first grade is a license to teach in the public schools for five years from its date.

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SALARIES						EXPERIENCE			
Amount	Men	Per cent Men	Women	Per cent Women	Total	Length of Service	Men	Women	Total
Under $400	2	.017	13	.076	15	Under 1 year	11	31	42
400–499	2	.017	22	.128	24	1 year	10	27	37
500–599	5	.043	57	.333	62	2 years	13	19	32
600–699	4	.034	33	.193	37	3 years	14	16	30
700–799	6	.051	20	.116	26	4 years	7	10	17
800–899	15	.128	13	.076	28	5 years	10	10	20
900–999	11	.094	10	.058	21	6 years	6	6	12
1000–1099	19	.163	3	.017	22	7 years	6	2	8
1100–1299	19	.163	0	——	19	8–9	8	14	22
1300–1499	6	.051	0	——	6	10–12	7	9	16
1500–1699	13	.111	0	——	13	13–15	7	8	15
1700–1999	6	.051	0	——	6	16–19	6	8	14
2000–2299	5	.043	0	——	5	20–30	13	5	18
Above $2300	3	.025	0	——	3	Above 30	2	2	4

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salaries of $400 or under is a graduate of a Vermont college. They are mostly graduates of Massachusetts colleges. It may be stated, too, that a salary in Vermont corresponds to a somewhat higher value in other states. A salary of $600 for our shorter school year is equal to one of $654 in New York or Massachusetts, and, if the difference in cost of living is considered, it would be above $700.

EXPERIENCE.

There is more professional stability among the male than among the female teachers of the state. This is shown in the smaller per cent who are without previous experience and the longer term of service. Nine and one-tenth per cent of the men and 18 per cent of the women are without previous teaching experience. A majority of the male teachers (54 per cent) have an experience of 5 years or under. Fifty-eight per cent of the female teachers have taught less than four years. The average length of service of male teachers is 8.1 years and of female teachers 5.1 years; the men remain in the service 59 per cent longer time than the women.

TEACHING EFFICIENCY.

The classroom efficiency of the teaching staff of the schools has been estimated from notes taken in observing the work of 209 teachers in 296 recitations. In this connection, note was made of the name of the teacher, the class reciting, the number of pupils, preparation of the pupils, preparation of the teacher and the recitation as a whole,—the data being recorded either during the progress of the recitation or immediately after. The terms excellent, good, fair and poor refer to the standard of classroom work. A

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teacher's work was rated "excellent" which was judged to be of a superior type. When the work was satisfactory it was rated as "good". Work was rated as "fair" in which there was as much that was unfavorable as favorable. Where the teacher's work was rated "poor" it means that the teacher should be employed in some other business. On the whole there is more teaching that is satisfactory in its results than the opposite. The best work was done, as a rule, in the higher class of schools where the teachers are experienced and their work is departmental in character. Ten and one-half per cent of the teaching was excellent; 48.3 per cent of the work was rated as good; 33.4 per cent as fair and 7.5 per cent as poor. In the case of the last named it means that there are 22 teachers whose work was judged a failure.

The 23 subjects of study that were observed have, for convenience, been divided into the following groups: languages, sciences, mathematics, history and miscellaneous. The average rating of each subject in each group has been made, and from these averages, the rating for the group has been determined. Finally, an average of the different group ratings has been made, which is the best available standard in determining the teaching efficiency in the secondary schools of Vermont. This average is 69.3 per cent. The lowest grade teaching was found in history, 67.5 per cent; the next highest in the sciences, 68.2 per cent; then followed the languages, 69.1 per cent; mathematics, 71.3 per cent and the miscellaneous group, 73.1 per cent. The miscellaneous group, which consists of penmanship, bookkeeping, commercial geography and teachers' courses, is made up of 8 observations only and there-

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fore is less representative than the other groups. The number of classes observed in each group, together with the percentages of the groups, is shown in the table below.

RATING OF GROUPS OF STUDIES.

	Number of Recitations Observed	Rating	Average Rating of Groups
Miscellaneous,	8	73.1	
Mathematics	56	71.3	
Languages	142	69.1	69.3
Sciences	44	68.2	
History	46	67.5	

Educational opinions and impressions are often at variance with that part of education which can be reduced to a science. The general impression made upon me through observation of teaching was that Latin, Mathematics, the Sciences, English, History and Modern Languages ranked in the order given in point of effectiveness of the teaching. After carefully checking up my records and reducing the several subjects to the same basis of comparison, the relative standing of 11 principal subjects in teaching efficiency is elementary algebra, German, physics, plane geometry, French, English, chemistry, Latin, history, biology and agriculture.

One reason for many instances of low rating is easily traceable to the program of study. Often a teacher had as many as 8 or 9 classes daily, so that it became a physical impossibility for him to excel in any of them. This phase of inefficient teaching is considered more at length under

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the subject of Courses of Study. In the cases of History, Biology, and Agriculture other causes for low rating are easily found. Very much of History teaching is out of date, it being largely a matter of hearing recitations; in the case of Biology, inadequate equipment was a principal cause of poor instruction. The quality of the teaching in Agriculture in high schools illustrates the folly of attempting to teach a subject with very little equipment and with teachers who have no knowledge of the subject or of the methods of its presentation. Before adequate instruction can be given in high school Agriculture, teachers must be prepared in a knowledge of the subject matter, and the materials and method of the subject must be more clearly specified. In the teaching of French little use is made of the direct method in the class either in elementary or in advanced courses. A few brilliant exceptions emphasize very clearly how this foreign language may be made both attractive and useful to the high school pupil. The relative rating of the several subjects of study may be seen in the table on the following page.

COURSES OF STUDY AND APPROVED SCHOOLS.

The length of the course of study is the basis for rating approved high schools and academies in Vermont. The statutes provide that an approved high school of the first class must maintain, through a period of four years, one or more courses of study that have been approved by the superintendent of education.

During the present year there are 90 approved high schools and academies in the state. These, as listed according to our present statutes, consist of 74 of the first class, two of the second class, 13 of the third class and one

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TEACHING EFFICIENCY BY GROUPS AND STUDIES.

	Number of Classes Observed	Rating of Subjects	Average Rating of Groups
Miscellaneous:			73.1
Penmanship,	1	75.0	
Bookkeeping,	1	75.0	
Teacher Tr'g,	5	72.0	
Com. Geog.,	1	75.0	
Mathematics:			71.3
Geometry,	27	70.0	
Algebra,	21	74.7	
Adv. Math.,	3	65.0	
Arithmetic,	5	66.0	
Languages:			69.1
Latin,	51	67.6	
English,	39	69.2	
French,	36	69.6	
German,	14	72.8	
Greek,	2	75.0	
Sciences:			68.2
Chemistry,	13	69.2	
Physics,	9	71.6	
Physiology,	3	70.0	
Astronomy,	1	75.0	
Biology,	5	66.0	
Phy. Geog.,	5	69.0	
Agriculture,	7	60.0	
El. Science,	1	75.0	
History:			67.5
History,	46	67.5	

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of the fourth class. Eighty-two per cent of the schools qualify in the first class.

CLASSIFICATION OF APPROVED SECONDARY SCHOOLS.

Classification	First	Second	Third	Fourth	Total
High Schools,	57	2	12	1	72
Academies,	17		1		18
Total,	74	2	13	1	90

My own estimate of the schools that were visited, based upon the ability of the school to serve the needs of its community, differs considerably from the above list. In estimating the quality of the school, consideration was given to the teaching staff, library, laboratory, courses of study, and the spirit of the school. Sixty-five secondary schools listed in the first class were visited and in my judgment they may be divided into 27 first class schools, 19 second class schools, and 19 third class schools.

The wholesale manner in which schools may be rated of the first class in this state is most reprehensible. Little or no consideration has been paid to the effciency of the teaching staff, the condition of the school buildings, the provision for laboratories with apparatus, the equipment of libraries, or to the manner in which the course of study is carried out in the school. The only possible good that can be seen in a policy of this kind is to secure a longer list of schools rated as high schools of the first class. Such a policy works hardship on the teacher, is unjust to the pupil, uneconomic to the community, unfair to those high schools of the state which can be easily ranked as first class high

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schools, and establishes wrong standards of education in the community.

That it works hardship on the teacher may be seen from the fact that there are 14 high schools of the first class which have but two teachers each. The hardship is not only a mental one in preparing for the day's work in so many subjects, but also a physical one in teaching so many different classes during the day. A few cases will illustrate the hardship imposed upon the principal and his assistant when carrying out the high school program of four years in length. In this connection it should be remembered that many of these small schools have little or no apparatus and equipment, and in many cases the teachers are either of a poor grade or with a short teaching experience.

CASE I.

PRINCIPAL	ASSISTANT
Algebra 1	Caesar
Physics 3	History 4
Plane Geom.	English 1
Bookkeeping	English 2
Geology	Cicero
Com. Arith.	Latin 1
French 3	English 4
French 4	History 2-3
History 1	English 3

CASE II.

PRINCIPAL	ASSISTANT
French 3	History 1
Latin 1	Anc. History
French 2	English 3-4
Math. 4	English 1
Com. Geog.	Geometry
Physics	History 4
Cicero	Algebra 1
Com. Arith.	English 2

CASE III.

PRINCIPAL	ASSISTANT
Geometry	Am. Hist.
Physics	Caesar

CASE IV.

PRINCIPAL	ASSISTANT
Adv. Algebra	English
Anc. Hist.	French 3

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Algebra	Virgil	Geometry	English 4
Arithmetic	Latin 1	Algebra	Caesar
French 2	Phys. Geog.	Phys. Geog.	English 3
French 1	Med. Hist.	Latin 1	Am. Hist.
Eng. Lit.	English 1	Chemistry	French 2
Am. Lit.		Cicero	English 2
English 2	Anc. Hist.	Arith.	French 4

This policy of accrediting schools is unjust to the student in that he may attend a high school rated of the first class, have his tuition paid by the state and find himself in a school with no library equipment, no laboratory or apparatus, and with teachers whose work is greatly overcrowded and who do not necessarily have to be college graduates. The injustice is felt later when he discovers that in reality he had been attending a third rate high school of the state which was rated as one of the first class. Graduates of the University of Vermont, Norwich and Middlebury College, who are teaching in the state, told me of their disappointment on entering college to find that their preparation was inadequate, even though they had attended high schools classified of the first class.

Again, it is unfair to those high schools of the state which are really first class in quality to be placed in the same list with schools which have no libraries, no science equipment, poor buildings, inadequate teaching staff and a restricted course of study.

It is uneconomic for the state to provide free tuition to 2358 pupils at schools which have as their principal quality of merit a four years' program of study. A state can invest its funds more profitably by establishing a more discriminating standard for high schools of the first class. No

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business man would invest in a manufacturing enterprise which had as its only guarantee a prescribed number of hours of work per week. He would demand some machinery and equipment, intelligent workmen and a standard of quality for the output. The low state of secondary education in Vermont can be traced more to the lax method of accrediting high schools than to any other source.

The effect of the inferior methods of accrediting secondary schools is most baneful to the community. Most schools, doubtless, furnish advantages superior to those that were offered twenty years ago. Schools have multiplied and high school attendance has increased greatly in recent years, so that what is really only a normal growth appears to many in the community as an unusual attainment.* In many places the local high school is the only standard the people have for judging what is the best in education. Many teachers, principals and superintendents have received their education wholly at Vermont schools and have no other standards of judgment. When these are rated so low that about 59 per cent of the high schools of the first class are overrated, the effect on the community can be seen. If a school is rated of the first class, the impression prevails that the height of educational perfection has been reached. People are loath to believe that educational reform is necessary. As the system of education in Vermont is political, community sentiment is reflected in the legislature through the community's representative with the result that there has been little or no advance in secondary education from this source for a good many years.

*During the decade ending in 1910 the attendance at secondary schools in the United States increased 57 per cent; in Vermont, the increase was 38 per cent.

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Reference has been made previously to certain superior conditions in Maine, New Hampshire, Massachusetts and New York. In the state of New Hampshire the conditions of approval of secondary schools are as follows:

"A first or second class approved secondary school must have a teaching force composed of graduates of approved colleges or of persons possessing for the purpose of their position equivalent education.

Equivalent education is a matter for the decision of the department in each case as it arises.

Each school must possess:

(a) A suitable building and schoolroom furniture;

(b) Text-books sufficient in quantity and quality for the courses taught;

(c) Maps, globes and charts sufficient for the courses taught;

(d) A suitable encyclopedia, and unabridged dictionary;

(e) Lexicons and other reference books sufficient for courses taught;

(f) Apparatus sufficient and suitable for each of the science courses taught.

Each approved school must maintain a program composed of secondary subjects exclusively, to the following extent: if a first class school, not less than fourteen units.

Each first class school must give one unit, required of all pupils, of instruction in the constitutions of the United States and of New Hampshire. A Senior course in constitutional history of the United States and of New Hampshire is recommended.

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The faculty of each school must be sufficient so that no teacher will be required to teach more than eight periods per day.

Pupils may be admitted to, promoted in, and graduated from, approved secondary schools only under regulations approved by the department."

Conditions for accrediting high schools in the state of New Hampshire have been given at length because that state, more than any other in the Union, is the most like Vermont geographically, physically, historically and socially. Occasionally reference has been made to the school systems of New York and Massachusetts, but these systems have not been emphasized because of the impression that prevails that Vermont is not in the class with these wealthy states. One must admit, however, the superiority of the systems of education in these two states. The principal question, in comparing Vermont with them, is whether their superior educational conditions are due to the wealth of the state, or if it is not rather true that those states are wealthy because they have maintained during a long period of years a high standard of elementary and secondary school systems.

In this connection, one might investigate with profit the school systems of other states which are beyond the limit of neighborhood relations.

An examination of the high standards for accrediting high schools in the state of Iowa shows the efforts that are made in that state for superior forms of education and, indirectly, reveals the intolerable weakness of conditions in our own state. The standards for accrediting in Iowa have prevailed for many years. The following are both the

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general and the specific standards for accrediting the high schools of the highest class in the state of Iowa. The general standards are:

1. "The course of study shall require of each pupil not more than four recitations daily and shall rest upon an elementary course of not less than eight years of thirty-six weeks each in length.

2. The number of daily periods of class-room instruction given by any one teacher shall not exceed seven, each to extend over at least forty minutes. Fewer periods would be productive of a higher grade of scholarship.

3. If all the teachers of a school are graduates of standard colleges the school will be regarded as meeting the requirements for scholastic attainment of teaching force. If one or more teachers are not such graduates, the board of secondary school relations shall use its judgment in determining the sufficiency of the scholastic attainment of such teacher or teachers.

4. Laboratory and library facilities and the character of text books shall be adequate to the needs of instruction in the subjects taught.

5. The quality of instruction, the spirit of the school, and the conditions of the school buildings shall be such as to make possible satisfactory scholarship."

In addition to the general standards, schools of Group 1 must meet the following specific standards:

1. "At least fifteen units for graduation.

2. A course of study meeting the requirements for unconditioned entrance upon all the four-year collegiate courses in the said institutions.

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3. The number of daily periods of class-room instruction given by any one teacher not to exceed six, each to extend over at least forty minutes in the clear.

4. The number of pupils not to exceed an average of thirty for each teacher.

5. A minimum teaching force of four teachers, exclusive of the superintendent.

6. The quality of the teacher's instruction and the character of the student's scholarship as determined both by inspection and by college records of graduates to be of notably high order."

The other groups of accredited schools are provided for, but the standards for Group 1 are given in detail for purposes of comparison with conditions in Vermont.

THE SMALL HIGH SCHOOL.

There is so much that merits consideration and so much that evokes criticism in many of the small high schools that special reference to them may not be out of place. These schools fulfill an important mission in our educational system. Criticism in regard to them has been expressed in the preceding pages. For a school to be small is not a reason in itself for it to be made a mark for unfavorable criticism. A principal criticism of the small high school is that it has too often been out-classed. What is needed among our schools is not a classification but a standardization. Small schools often undertake to do too much work; their facilities are meager, their teaching staff few in numbers, the community influence unfavorable. The school undertakes to carry out a four-year program of studies with the result that, although the ground may be

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covered, the work is of a superficial nature. If higher standards were required in way of equipment and teaching force many of the schools would be legislated out of existence. They are too valuable for that to happen. Rather they should be legislated into real efficient existence. It would be well if special appropriation of state school funds could be made to deserving communities which appropriate annually a good per cent of the grand list for education,—the extra funds to be used in securing high grade teachers and in purchasing apparatus for school use.

STATE ADMINISTRATION OF SECONDARY SCHOOLS.

The principal statutory requirements of Vermont that relate to instruction in high schools and academies provide that a high school shall be in one of the following classes:

First class, the schools of a 4 years' course or courses.

Second class, the schools of a 3 years' course or courses.

Third class, the schools of a 2 years' course or courses.

Fourth class, the schools of a 1 year's course or courses.

The courses of instruction in any one of the four classes shall begin immediately at the completion of an elementary course of nine years. The schools shall be maintained at least 36 weeks in the school year and shall be taught by a teacher or teachers of competent ability, of good morals and legal certification. The course or courses and subjects of study for each school shall be prescribed by the superintendent of education and each school shall conform thereto.

Towns shall maintain a high school or furnish higher instruction for its advanced pupils in an accredited high

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school or academy. The qualification of a pupil to receive free tuition in a high school of another town or in an academy shall be determined by an examination given by the superintendent of the town in which the pupil resides. The superintendent of a town in which a high school is maintained may determine the qualifications of elementary pupils to enter such high school or he may require such pupils to take the state examination for advanced instruction in the manner prescribed for pupils from other towns whose tuition is paid by high schools or academies. Papers for such examinations must be procured from the superintendent of education and the papers written by applicants must be forwarded to the superintendent of education, who shall determine the ratings of pupils and notify the superintendent of the town. The standard of high schools and academies shall be determined and established by the superintendent of education.

In addition to the statutory requirements, the essentials of which have been briefly mentioned above, mention should be made of a publication entitled Minimum Courses of Study prepared for the High Schools and Academies of Vermont, and issued by the department of education in 1907. In this publication there are 14 pages devoted to suggested programs of study, apparatus, and experiments in physics, biology and chemistry. On pages 4 and 5 of this pamphlet the following conditions governing approved secondary schools are set forth:

1. "Secondary school teachers must be college graduates or holders of first grade teacher's certificates.

2. The length of the school year shall be at least thirty-six weeks.

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3. The minimum number of recitations shall be as indicated in the courses prescribed hereafter.

4. The admission requirements shall include all the work prescribed by law for the elementary schools.

5. The length of a recitation for classes of less than ten must be at least thirty minutes; for classes of ten or more, forty minutes.

6. The work in each subject must include the amount specified hereafter; but the order may be modified with the approval of the Superintendent of Education.

7. Not more than one-half of the laboratory time shall be credited as recitation time.

8. Each principal must furnish the Superintendent of Education, at the beginning of each scholastic year, a certified statement of the courses adopted by his school, the class of school maintained, and, at the beginning of each term, a program of recitations."

The administration of secondary schools in Vermont is weak because of its indefiniteness, the low standard of requirements, the short school-year and the inferior certificate required of secondary teachers.

The indefiniteness is shown in the absence of printed manuals, syllabi and other aids to schools and teachers of secondary grade. The printed courses of study that have been issued originated in the School-masters' Club. Educators of the state today are uncertain whether these courses serve as suggested guides to them in their work or whether they are prescribed and mandatory. These courses as printed show a lack of coherence and standard.

The statutory requirement for the length of the high school year is 36 weeks. As a matter of fact, however, the

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average school year for the high schools of the state is 36.5 weeks and for the academies 37.4 weeks. This gives an average of 36.7 weeks for the secondary schools of the state. In Massachusetts and New York the requirements are 40 weeks for the school year. In this particular, the Vermont high schools are only 92 per cent as efficient as the high schools of those two states.

High school teachers may be college graduates or they may not be. The qualifications for first class certificates are a teaching record of 40 weeks, examination papers that show the applicant has reached the standard required, and evidence of good moral character and ability to govern. What the "standard required" may be is not stated. Already references have been made to the standard of requirement in other states for high school teachers. These either conform to the requirements recommended by the Committee of Seventeen of the National Educational Association on the professional preparation of high school teachers, or else they are developing toward those requirements. In Vermont no single part of these requirements is in force.

Another noticeable defect of the present system of high school administration is the absence of visiting and inspecting schools by state officials. This was a frequent source of complaint made to me by principals and superintendents. There are schools which could be visited easily that have had no benefit of expert educators for years beyond that given by local officers. The result of this neglect is seen in the character of the individual schools. A first class high school rests on its own merits,—a capable principal and assistants, a sympathetic school board, an interested commun-

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ity. A third rate school is too often the result of state neglect—no state inspection, the certification of inefficient teachers, no compulsory equipment and apparatus, a shifting teaching staff. The best schools may not need state inspection, yet the most of them are asking for it; the poorer class of schools could have no more wholesome tonic than an occasional visit from a state official qualified to advise, to assist and to correct in whatever particulars the local needs of the community and school required.

Attention should be given to the development of a more complete system of administration of secondary education in Vermont. A system presupposes a definite policy of action, carefully prescribed details by which the system shall be administered, and competent force to administer the system economically and scientifically. Such a system has yet to be worked out for our state. The department of education has neither funds, clerical force, nor staff officials sufficient to administer adequately or economically the elementary and secondary schools of the state. For the school system to be standardized in every particular would require a stronger administrative body, efficient clerical force and adequate inspection of schools. It would mean increased cost but a more efficient administration of secondary schools. There are states, however, which believe that increased efficiency in the administrative body insures a greater increase in the efficiency of the school system, and is worth more than it costs.

SECONDARY SCHOOLS AND THE COLLEGE.

A frequent inquiry asked of school principals was "In what way do the colleges hamper the work of the secondary schools?" The answer invariably was that they felt no

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dominance of college influence worth mentioning. However, my observation led me to a different conclusion. It seems to me that the secondary schools of the state show in a very marked degree the influence of the college. It is an indirect influence today, but it has been more influential in shaping the development of the best secondary schools in Vermont than has any standard set by the state. The requirements for college entrance and the standards of the New England College Certificate Board undoubtedly have determined the maximum standard courses in our secondary schools.

According to the latest report of the New England College Certificate Board there are 28 Vermont secondary schools on the approved list of the Board. It should be stated that a primary condition to being listed among approved schools is that a school maintain a certain number of students for a stated period of years in some of the colleges which have membership in the Board. In comparing the approved list of the Board with my own list of Vermont secondary schools I find that there are 19 schools on the approved list which are in my list of first class high schools, 8 of the approved list which are among the second class high schools, and one of the approved list among the third class high schools. On the other hand, 8 first class schools of the state are not on the approved list of the Board.

The college entrance courses in our secondary schools receive relatively too much attention and also more than the other courses. Too often the library equipment and apparatus for the laboratories are selected to meet the needs of students expecting to enter college. Special apparatus for teaching Physical, Commercial and Industrial Geogra-

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phy, Botany, Zoology, Physiology, Domestic Science and Agriculture is too often neglected, or, if furnished at all, because it is incidental to the equipment of chemical and physical laboratories. There is a tendency in some of the schools to adjust the supply of equipment, the instruction in the class, and the nature of the experiments to meet the requirements of the College Certificate Board. This method may be all right as related to students who expect to enter college, but is not fair to those students who expect to finish their education with a high school course. If the secondary schools are to be the college for the people, there is need of a considerable readjustment in our teaching staff, in our courses of study, and in the material equipment of the schools to meet the needs and interests of the boys and girls of the state. An encouraging sign is the tendency to establish commercial courses on a four years' basis with the technical instruction of the course placed largely in the last two years.

Two schools that promise much for Vermont boys are the State Agricultural School at Randolph and the Agricultural Department of Lyndon Institute. Both schools have been established recently on broad foundations, with rather full equipment for serving the needs of their patrons.

SUMMARY.

In reviewing the condition of high schools and academies in Vermont, one fact stands out prominently, viz.: the need of complete reorganization of the system. We would suggest as necessary means for bringing the schools of the state to the highest pitch of efficiency:

1. That the work of the state department of educa-

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tion be extended more completely into the field of secondary education.

2. That the state require inspection of high schools and a satisfactory conformation of approved schools to a minimum standard.

3. That a more detailed system of records and reports for schools be developed, that a cumulative record of every pupil be kept in every school and that approved schools take inventories of library equipment, laboratory supplies, and other school property annually, and furnish duplicate copies of the same to the department of education.

4. That approved schools possess a minimum laboratory equipment for each of the major and one of the minor sciences offered in its course.

5. That approved schools possess standard lists of books for each course offered in history.

6. That syllabi and manuals for the teacher's guidance be furnished to the high schools by the department of education.

7. That certification of teachers entering secondary school service be based on higher academic and professional attainments.

8. That enriched courses of study be provided for both the regular four-year high school and prospective six-year high schools.

9. That the school year be increased to 40 weeks for approved high schools and to 36 weeks for eight years for elementary schools. In the latter case it would result in the saving of a year of the pupil's time over the present practice of having nine years of 32 weeks each.

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10. That six-year high schools be established wherever practicable, these schools to continue the work of six-year elementary schools that have 36 weeks in the school year.

11. That more careful provision be made for the inspection of the heating, lighting, sanitation and ventilation of school buildings.

12. That the high schools in the smaller communities which show a spirit of liberal support of schools be encouraged by special State appropriations.

CORRECTION. P. 20, line 7, instead of 28 read 22.

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MIDDLEBURY COLLEGE BULLETIN

VOL. VI. NUMBER V.

Published by the College September, October, December, February, May, and July. Entered as second class matter at the postoffice, Middlebury, Vermont, under act of Congress, of July 16, 1894.

THE SEYMOUR PRESS - MIDDLEBURY, VERMONT.

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